

Textbook

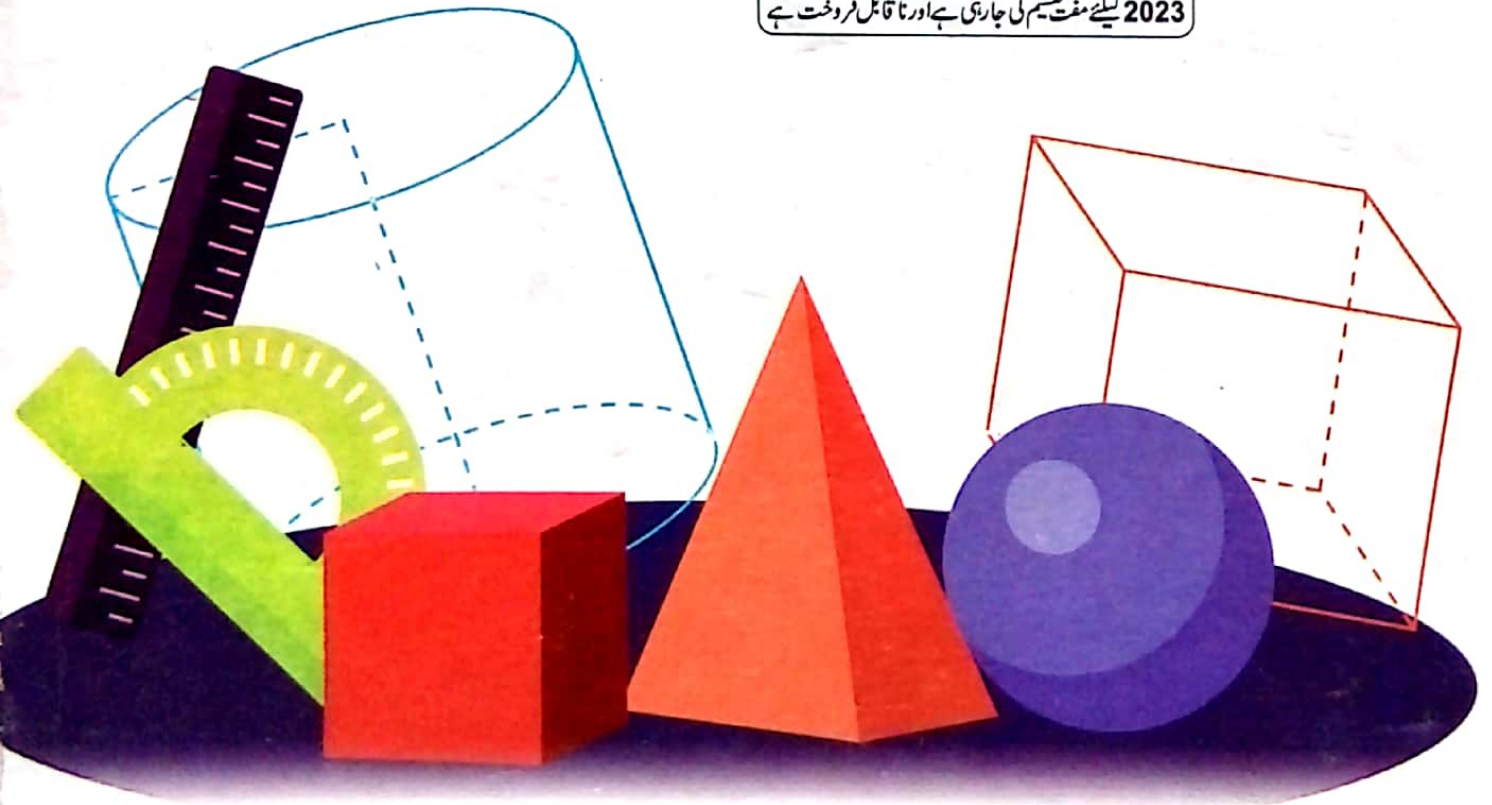
4

Mathematics

Based on Single National Curriculum 2020

Test
Edition

یہ کتاب محکمہ تعلیم حکومت بلوچستان کی جانب سے تعلیمی سال
2023 کیلئے مفت تقسیم کی جارہی ہے اور ناقابل فروخت ہے



حکومت بلوچستان کا پروگرام ”معیاری تعلیم سب کے لیے“



Balochistan Textbook Board, Quetta

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ
شروع اللہ کے پاک نام سے جو بڑا مہربان نہایت رحم والا ہے۔

Textbook

Mathematics

Grade 4

Based on Single National Curriculum

One Nation, One Curriculum

یہ کتاب محکمہ تعلیم حکومت بلوچستان کی جانب سے تعلیمی سہل
2023 کیلئے مفت تقسیم کی جارہی ہے اور ناقابل فروخت ہے

Publishers:



BALUCHISTAN TEXTBOOK BOARD QUETTA

Unit 7

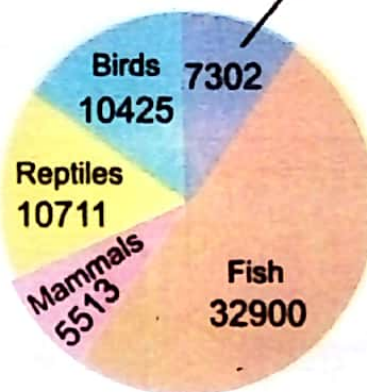
Data Handling

Learning Outcomes

By the end of this unit, you will be able to:

- Read simple bar graphs given in horizontal and vertical form.
- Interpret real life situations using data presented in bar graphs.
- Read line graph.
- Interpret real life situations using data presented in line graphs.
- Read Pie Chart.
- Interpret real life situations using data presented in Pie Chart.

Animals living on water and land



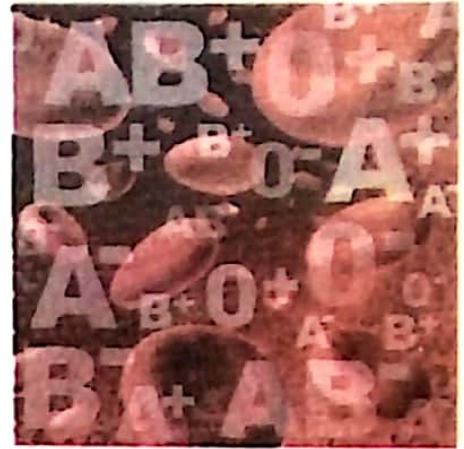
Types of Vertebrates

The chart given above shows the types and number of vertebrates. By looking at the chart, can you write these types in the ascending order of their number?

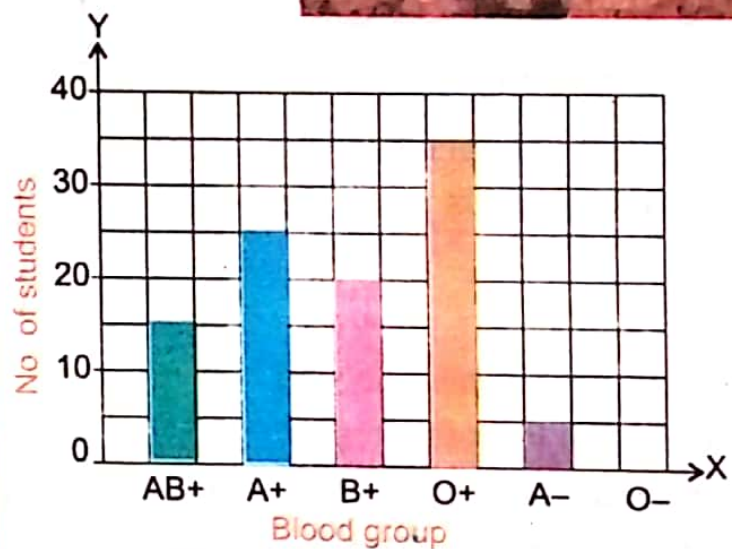
Bar Graph



Nida did a survey of three sections of her class in which she asked about the blood groups of students. She has prepared a bar graph based on this information. How can we read this graph?



In the vertical direction of this graph, a small square is representing 5 students. If we look at each bar one after the other, we can obtain following information from it:



Scale: A small square in vertical direction is showing 5 students

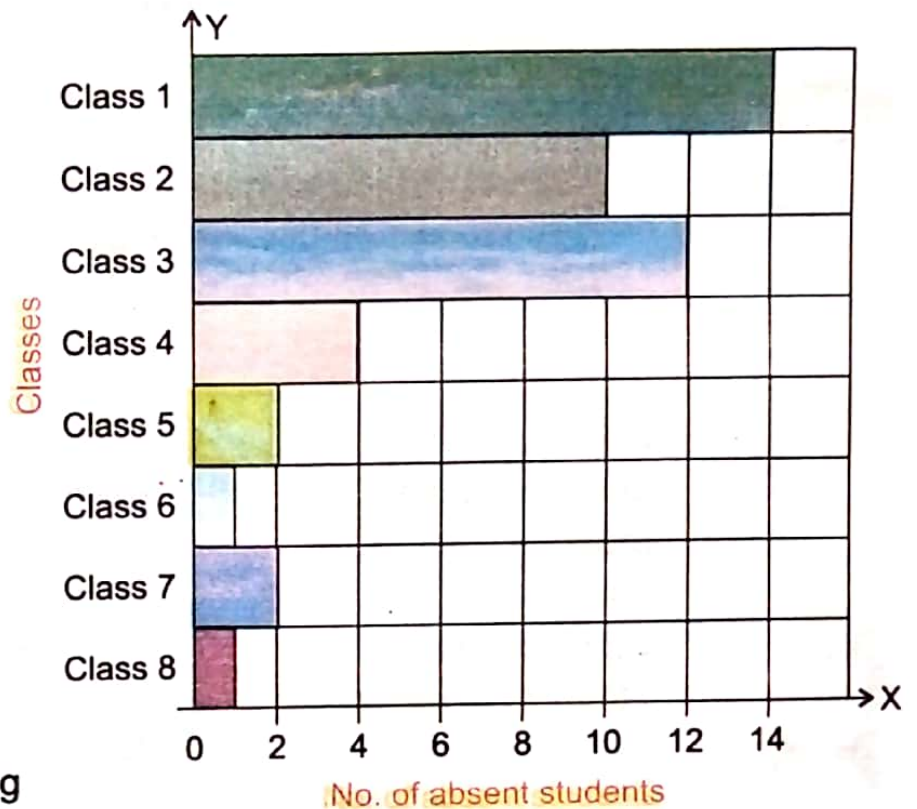
- No students have O⁻ blood group.
- The students having O⁺ blood group are maximum in number.
- The students having A⁻ blood group are minimum in number.
- Total number of students with blood groups A⁺ and AB⁺ is 40
- 20 students have blood group B⁺.
- Nida collected information of 100 students.



The bar graph given above is a vertical bar graph. Similarly a horizontal bar graph can be drawn as well.

The following graph is about the students who were absent from school for three months.

In this graph, the bar is horizontal. That is why it is called a horizontal bar graph.



Key Fact

The width of each bar in a bar graph is same.

We can obtain the following information from this graph:

- The maximum number of absent students was in class 1.
- The minimum number of absent students was in classes 6 and 8.
- The difference between absent students of class 1 and class 8 is 13. ($14 - 1 = 13$)
- The number of absent students in classes 5 and 7 is same, i.e. 2.
- The number of absent students in classes 6 and 8 is same, i.e. 1.
- The information of 45 students in total is shown in this bar graph.

Scale: A small square in horizontal direction is showing 2 students.

Try Yourself

In which classes, difference between the number of absent students is the least?



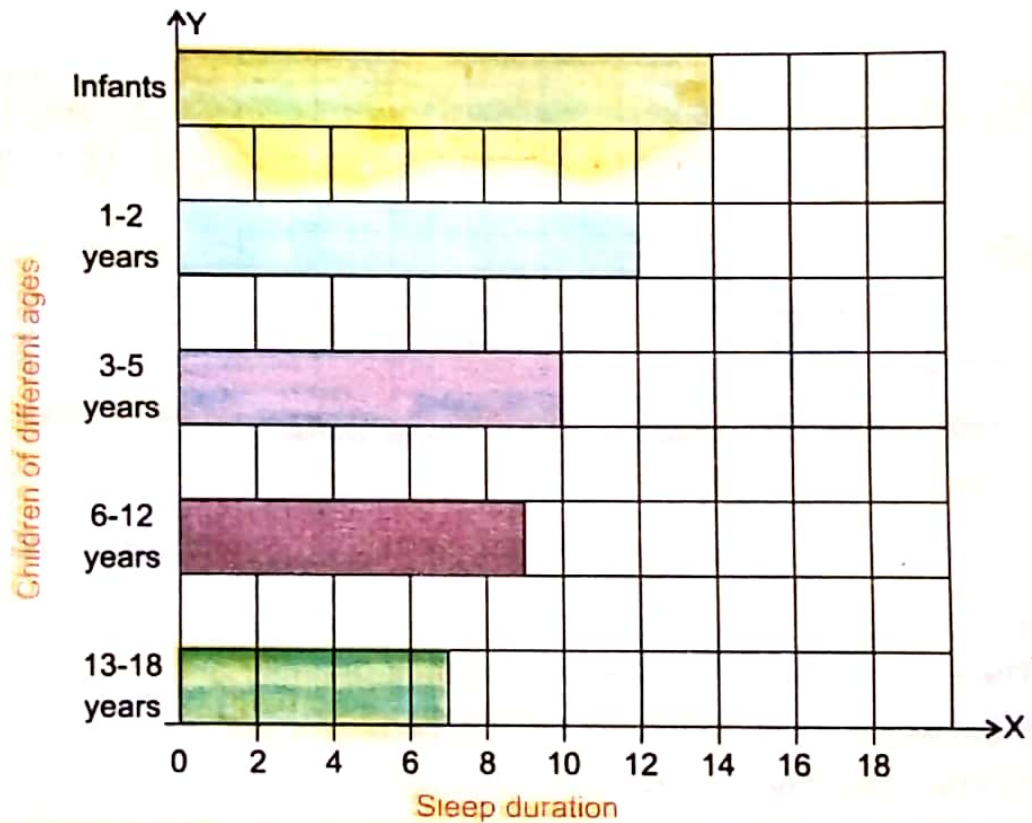
Draw graphs about favourite subjects, foods, hobbies of students and ask questions about them.

یہ کتاب محکمہ تعلیم حکومت پنجاب کی جانب سے طبعی ہوئی
2023 کیلئے مفت تقسیم کی جا رہی ہے اور ناقابل فروخت ہے

Exercise 1



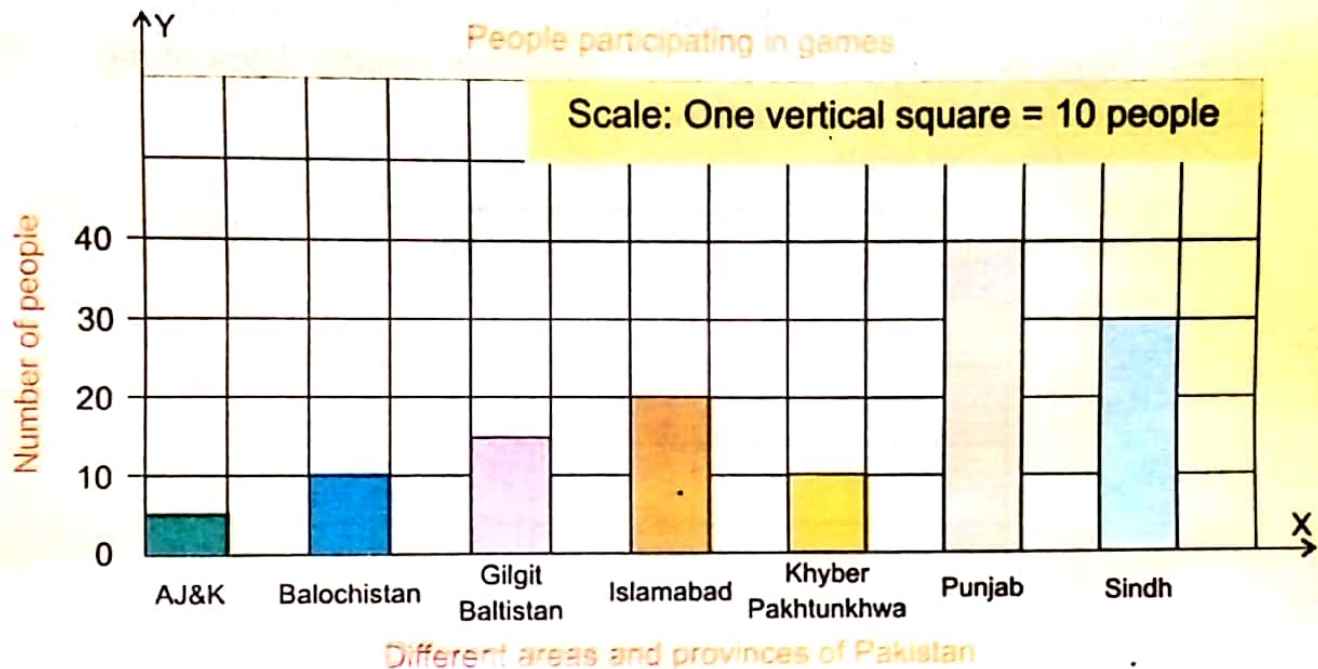
1. The minimum time for suggested sleep for children of four months to eighteen years is shown by using the following bar graphs. Look at the graph closely to answer the questions.



Scale: A small square in horizontal direction is equal to 2 hours.

- For children of 6 to 12 years, time duration of suggested sleep is _____.
- For which age group, the time duration of sleep is maximum?
_____ and how much? _____
- The sleep duration for children of age 13 to 18 years is _____ hours less than the sleep duration for children of age 3 to 5 years.
- For which age group the time duration for sleep is minimum and how much? _____

2. In April 2020, people from different areas and provinces of Pakistan participated in games. The number of participants is shown with the help of this bar graph. Read the graph and answer the questions.



- The greatest number of people are from _____ and their quantity is _____.
- The less number of people are and their quantity is.
- From which cities 30 people participated?
- In which two cities the people are of same quantity?
- What is the total number of people participated in Game.

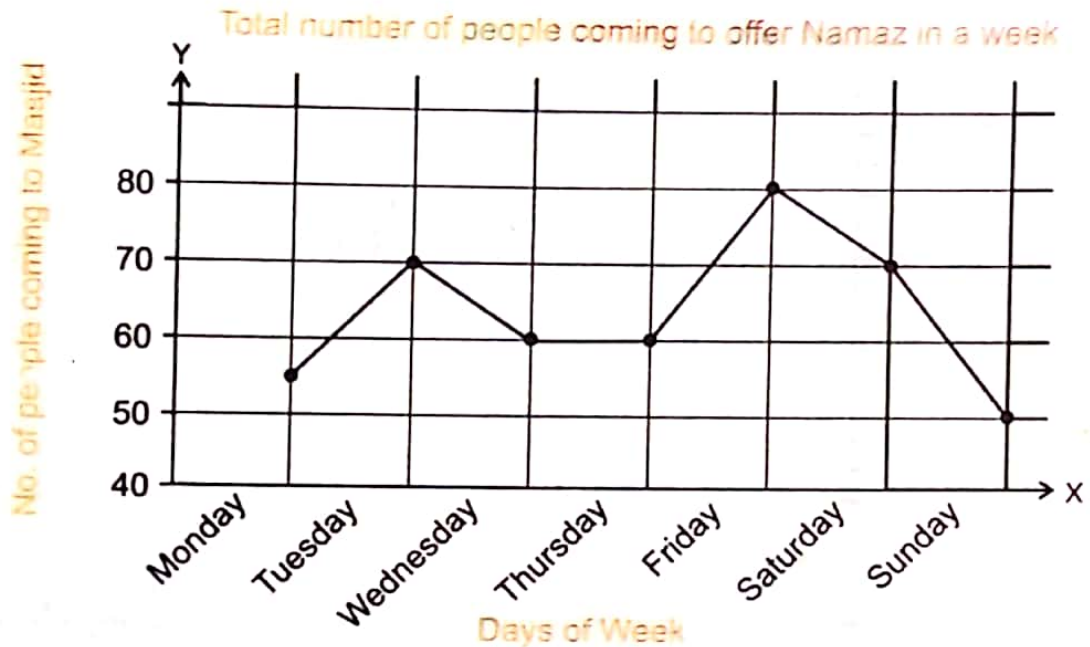
Line Graph



The number of people who came in a Masjid every day to offer Zuhr Namaz for a week is represented by this graph. What type of graph is it and what information can we obtain from this graph?



This is a line graph. It is drawn by joining different points which represent the values of some data.



Scale: A small square in vertical direction is representing 10 people coming to masjid.

By reading this line graph, we can find out easily that how many people came to offer Namaz and on which day.

- a) 55 people came to offer Namaz on Monday.
- b) On Tuesday, 70 people came while on Wednesday 60 people came to offer Namaz.
- c) The least number of people coming to offer Namaz was on Sunday who were only 50 in number.
- d) The maximum number of people, i.e. 80 came on Friday.



Key Fact

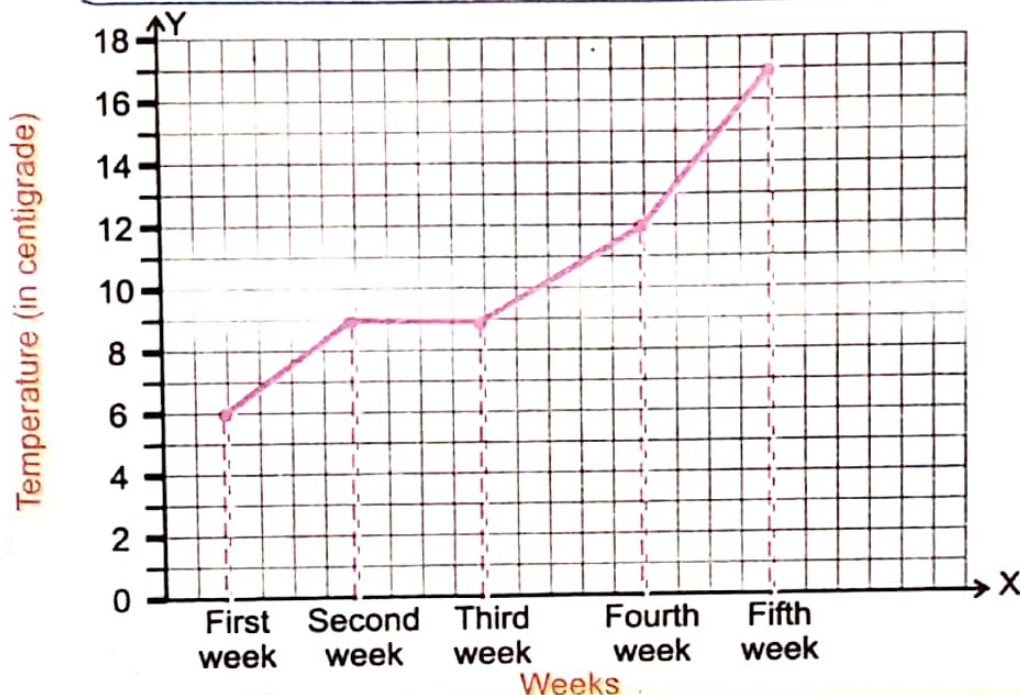
Usually, a line graph represents data which changes with time.



Tell students how to read a line graph with the help of examples. Familiarize them with the concept of scale and tell them to read the scale of a graph



A graph is drawn with the help of maximum temperatures of a city during 5 weeks.



Scale: A small square in vertical direction is representing 1 degree centigrade.

In this line graph, we can see that:

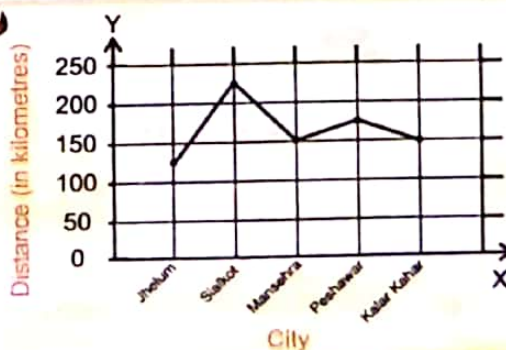
- Except on second and third week, the temperature throughout the week has increased gradually.
- In the second and third week, the temperature remained same, i.e. 9 degree centigrade.
- The minimum temperature was recorded in the first week, i.e. 6 degree centigrade.
- The maximum temperature was recorded in the fifth week, i.e. 17 degree centigrade.
- In five weeks, the difference between the maximum and minimum temperatures is 11 degree centigrade.

Try It!



Observe the given line graph and find the mistake in it.

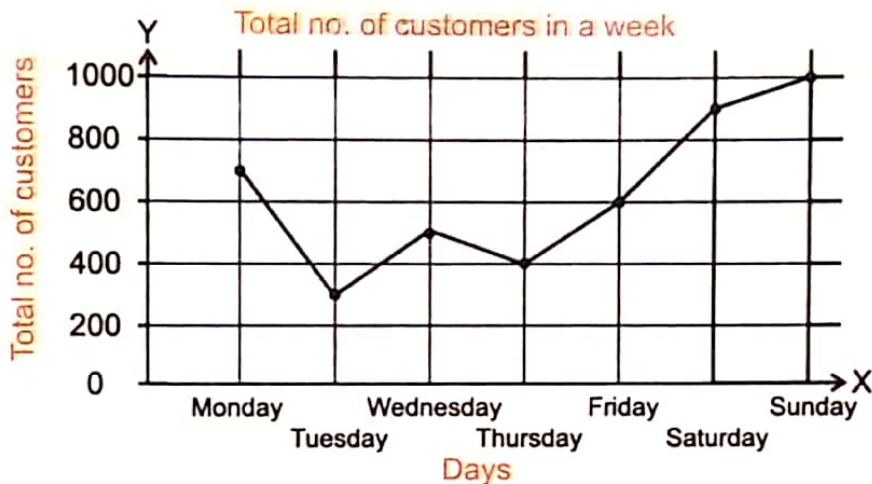
City	Jhelum	Sialkot	Mansehra	Peshawar	Kalar kahar
Distance from Islamabad in kilometres	125	275	150	175	150



Exercise 2

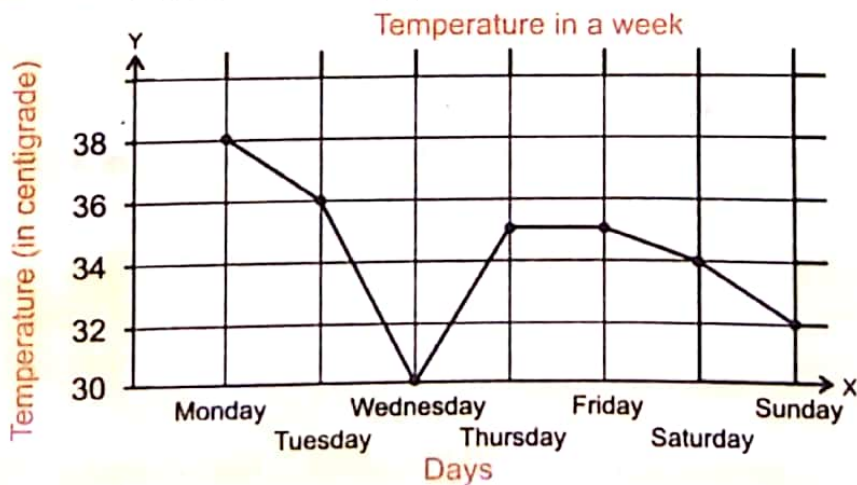


1. In a superstore, the number of customers who came for shopping from 11 am in the morning to 6 pm in the evening for a week, is shown in this line graph. Read the graph carefully to answer the given questions.



- On what day did the maximum number of customers come and how many?
- Is the total no. of customers coming on Monday and Thursday more or less than the no. of customers coming on Sunday?
- On what day did the minimum number of customers come and how many?
- How many customers came on Friday.

2. During a week of August, the maximum temperature (in centigrade) of Peshawar is shown in this line graph. Read it to answer the questions.

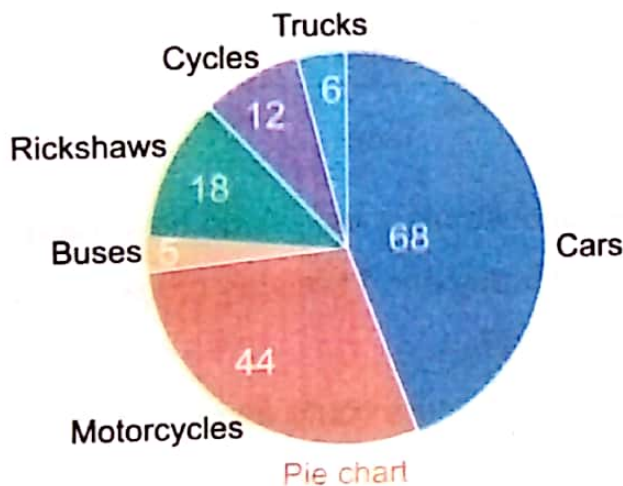


- On what day the temperature was highest?
- Which two days had the same temperature and how much?
- What was the lowest temperature and on what day?
- What was the temperature on Friday?

Pie Chart



The type of traffic that passed on the road near my house during ten minutes by using the pie chart given below.



Pie chart



Key Fact

A pie chart is also called a circle graph. It can be divided into many sectors and each sector represents only one type of things.

Pie chart is also used for organization and representation of information. The form of sectors of a circle.



In this pie chart we can see that:

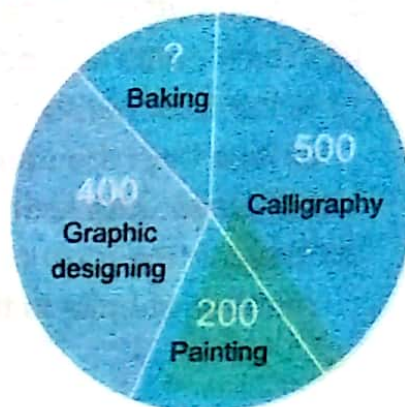
- During 10 minutes, the most frequently passing vehicle is a car which is shown by the blue sector.
- Motorcycle is the second most frequently passing vehicle.
- Only a few trucks passed, i.e. 6 and buses passed in the least number, i.e. 5.
- Other than that rickshaws and cycles passed in the numbers of 18 and 12 respectively.
- By looking at this chart we can find that during 10 minutes a total of 153 vehicles passed from this road.

In the following pie chart, information of 1250 people taking admission in different courses during vacation is shown.

- The most number of admissions were taken in calligraphy.
- The least number of admissions were taken in baking.

150 people got admission in baking course.

$$\begin{aligned}
 &= 1250 - (500 \times 200 + 40) \\
 &= 1250 - 1100 \\
 &= 150
 \end{aligned}$$



What fraction of people got admission in graphic designing.

$$\begin{aligned}
 \text{Fraction of people getting admission in graphic designing} &= \frac{400}{1250} \\
 &= \frac{8}{25}
 \end{aligned}$$

Exercise 1



- The food components present in a boiled egg are shown in this pie chart. Read the chart carefully to answer the given questions.

- What is the quantity of fat in the boiled egg? Write

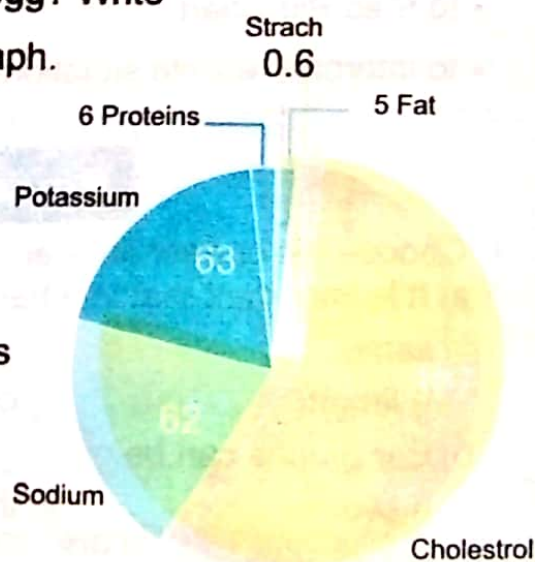
Food components of boiled egg from graph.

- What component is present in the most amount?

- What is the total quantity of fat and proteins?

- How much less is the quantity of proteins than the quantity of sodium?

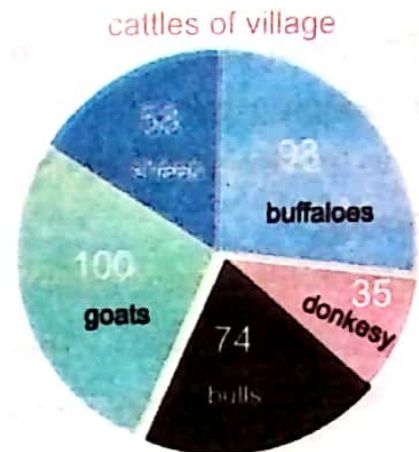
- What is the component that is present in the least amount in a boiled egg?



Tell students the method of reading a pie chart with the help of different examples. Tell them that a complete pie chart represent a 'total' and its sectors represent different parts of that 'total'.

2. A survey in a village was carried out to find what cattle are bred by the people of the village.

- Which cattle is bred the most?
- Which cattle is bred the least?
- Is the total number of sheep and goats more or less than the total number of donkeys and buffaloes, and how many more or less?
- Write in the form of fraction what part is the number of bulls to the total number of cattle?



I Have Learnt



- to read simple bar graphs given in horizontal and vertical form
- to interpret real life situations using data presented in bar graphs
- to read line graph
- to interpret real life situations using data presented in line graphs
- to read Pie Chart
- to interpret real life situations using data presented in Pie Chart

Vocabulary

- | | |
|------------------------|----------------------|
| • Data | • Vertical Bar Graph |
| • Bar Graph | • Line Graph |
| • Horizontal Bar Graph | • Pie Chart |
| | • Sector |

Review Exercise



1. Choose the correct answer.

- It is important that in a bar graph, the _____ of each bar is same.
 - length
 - colour
 - width
 - value
- Bar graphs can be of _____ types
 - two
 - three
 - four
 - five
- _____ is also called a circle graph.
 - Pie chart
 - Line graph
 - Vertical bar graph
 - Horizontal bar graph

d) _____ is drawn by joining the dots representing the quantity of a given value in the question.

i) Pie chart

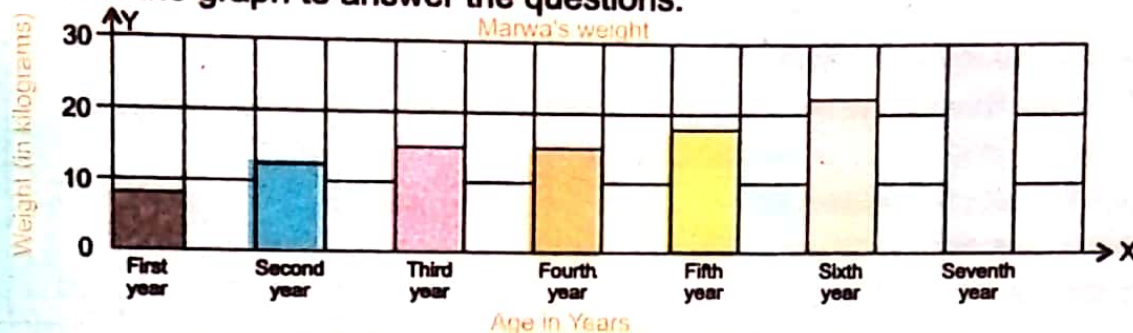
ii) Line graph

iii) Vertical bar graph

iv) Horizontal bar graph

2. Marwa's weight from birth to 7 years is shown in the following bar graph.

Read the graph to answer the questions.



Scale: One square in vertical direction is representing 10 kg.

a) What was Marwa's weight at the age of one year?

b) In what years Marwa's weight was same and how much?

c) What was the age duration in which Marwa's weight increased the most and how much?

d) What was the age duration in which Marwa's weight increased the least and how much?

e) How much did Marwa's weight increase in total from the age of one year to 7 years?

3. Ahad has planted different flowers in his

garden. Their number and type is

shown in this bar graph. Read the graph to answer the questions.

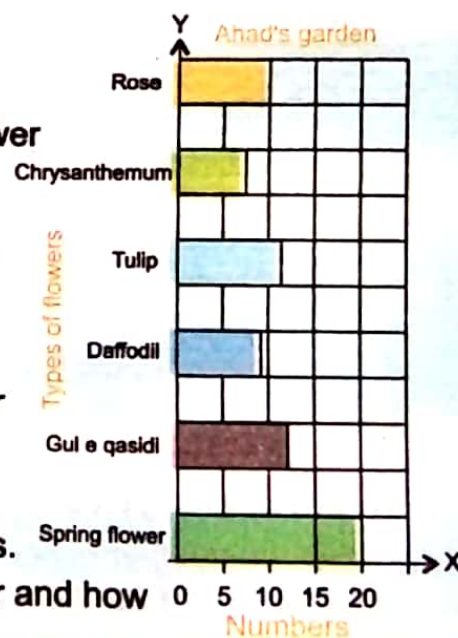
a) How many roses are there in Ahad's garden?

b) How much less are the tulips than the Gul e qasidi?

c) Which flowers are present in the most number in Ahad's garden and how many are they?

d) Write in fraction form the number of tulips as compared to the total number of all the flowers.

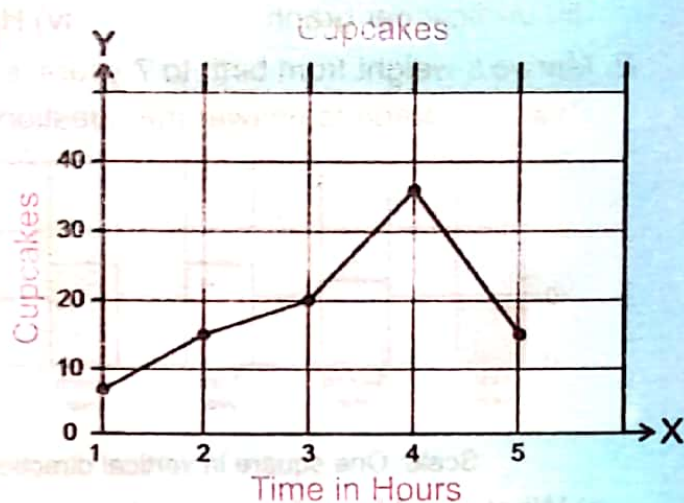
e) Which flowers are present in the least number and how many are they?



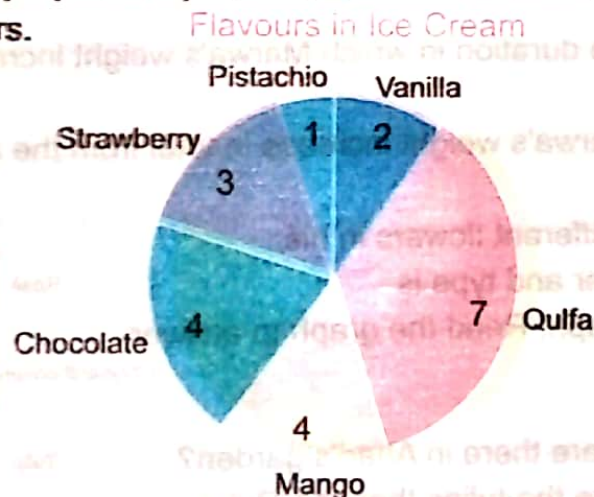
Scale: One square in vertical direction is representing 5 flowers.

4. Ibrahim set up a stall of cupcakes on the spring festival of his school. Ibrahim drew a line graph of the cupcakes sold in each hour from 9 in the morning to 2 in the afternoon. Look at the graph to answer the questions.

- How many cupcakes were sold in the third hour?
- In which hour were the most cupcakes sold and what was their number?
- In which two hours were same number of cupcakes sold? What was their number?
- If Ibrahim sold 92 cakes in total, how many cakes were sold in the first hour?



5. Arham asked 20 members of his family about their favourite flavors of ice cream. Arham prepared a pie chart based on the answers given by all the family members.



- How many people like vanilla ice cream?
- Which flavor is liked the most?
- Which flavor is liked by the same number of people and how many?
- How much less are the number of people preferring pistachio ice cream than the number of people preferring qulfa ice cream?
- There are 20 family members in total while people preferring chocolate ice cream are 4. How will you show this number as a fraction?